SEQUENCE LISTING

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<120> FOOD-GRADE CLONING VECTOR AND THEIR USE IN LACTIC ACID
      BACTERIA

<130> 030307-0191

<140> 09/673,617
<141> 2001-01-25

<150> PCT/DK99/00209
<151> 1999-04-14

<150> 60/082,555
<151> 1998-04-21

<150> DK 0551/98
<151> 1998-04-21

<160> 28

<170> PatentIn Ver. 2.1

<210> 1
<211> 89
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA sequence
      comprising the tRNA encoding suppressor gene

<400> 1
ggagccatgg cagagtggta atgcaacgga ctctaaatcc gtcgaaccgt gtaaagcggc 60
gcaggggttc aaatccccctt gactcctta   89

<210> 2
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 2
cgaattcata tttgattaat gagaatatgg aacc   34

<210> 3
<211> 27
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: Primer

<400> 3
cgggatcctt tcaggaaggt aattaac                                    27


<210> 4
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 4
cgaattcaac atttttgtat aaatatgcg                                  29


<210> 5
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 5
gggaattcag gaaggtaatt aactatgg                                   28


<210> 6
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 6
gcagatctaa gcttgattca agaagtaaaa gaaggc                          36


<210> 7
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 7
atagatctac tcgatgccaa gaatggaccg c                               31


<210> 8
<211> 28
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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<220>
<221> modified_base
<222> (11)
<223> a, t, c, g, other or unknown

<220>
<221> modified_base
<222> (14)
<223> a, t, c, g, other or unknown

<220>
<221> modified_base
<222> (17)
<223> a, t, c, g, other or unknown

<220>
<221> modified_base
<222> (20)
<223> a, t, c, g, other or unknown

<400> 8
aaaggcctgt natngcnctn gayttycc   28

<210> 9
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<220>
<221> modified_base
<222> (13)
<223> a, t, c, g, other or unknown

<220>
<221> modified_base
<222> (16)
<223> a, t, c, g, other or unknown

<400> 9
tggacgaatt ccnggngt   18

<210> 10
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 10
catagtaaac gacttgggg   19

<210> 11
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 11
tacgcacaaa aaaccgct   18

<210> 12
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 12
ggtcgccttt acttgcacc   19

<210> 13
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 13
gattatattg ttgtcggccg   20

<210> 14
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<220>
<221> modified_base
<222> (24)
<223> a, t, c, g, other or unknown

<400> 14
gctctagagc mwatygwwat dggn   24

```
<210> 15
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<220>
<221> modified_base
<222> (4)
<223> a, t, c, g, other or unknown

<400> 15
ggtngartgg aaygaraara thaay                                          25


<210> 16
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 16
cctcaaccta ggagaaaatt atgc                                           24


<210> 17
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 17
tctcctaggt tgaggttaat tgtg                                           24


<210> 18
<211> 22
<212>   DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 18
atagatctgc ttagaaaact tg                                             22


<210> 19
<211> 25
```

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 19
atagatctgc atgtaagcaa aaacc   25

<210> 20
<211> 12
<212> PRT
<213> Lactococcus lactis

<400> 20
Thr Gln Leu Thr Ser Thr Ser Glu Lys Ile Met Gln
 1   5   10

<210> 21
<211> 36
<212> DNA
<213> Lactococcus lactis

<220>
<221> CDS
<222> (1)..(36)

<400> 21
aca caa tta acc tca act tct gag aaa att atg caa   36
Thr Gln Leu Thr Ser Thr Ser Glu Lys Ile Met Gln
 1   5   10

<210> 22
<211> 36
<212> DNA
<213> Lactococcus lactis

<220>
<221> CDS
<222> (1)..(18)

<400> 22
aca caa tta acc tca acc taggagaaaa ttatgcaa   36
Thr Gln Leu Thr Ser Thr
 1   5

<210> 23
<211> 937
<212> DNA
<213> Lactococcus lactis

<220>
<221> CDS
<222> (224)..(934)

<400> 23
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tgattttatt attagctaaa attactgaca gcctgtttaa tcattctgtc agtaaaatgc 60

gaccaaagcg agcattttat ccatagctaa aagaattgtc agcggagctg ataattctct 120

cgttcgttag cgaccaaagc gagcatttta tggatagcta aagaattgt catcaaagct 180

gataattctg tcattaaata tttagaaaaa ggaagtagaa aaa atg caa gaa aat  235
                                                 Met Gln Glu Asn
                                                  1
```

```
aga cct gtc att gcc ctt gat ttc cct gaa ttc tca gac gta aaa gat  283
Arg Pro Val Ile Ala Leu Asp Phe Pro Glu Phe Ser Asp Val Lys Asp
 5              10                  15                  20
```

```
ttt ctc gaa aaa ttt gac ccg tca gaa caa ttg tat att aaa cta gga  331
Phe Leu Glu Lys Phe Asp Pro Ser Glu Gln Leu Tyr Ile Lys Leu Gly
               25                  30                  35
```

```
atg gaa ctt ttt tac acg gct ggg ccc caa gtc gtt tac tat gta aaa  379
Met Glu Leu Phe Tyr Thr Ala Gly Pro Gln Val Val Tyr Tyr Val Lys
               40                  45                  50
```

```
tcg ctc ggc cac agt gta ttc ctt gat tta aaa ctc cat gat att cca  427
Ser Leu Gly His Ser Val Phe Leu Asp Leu Lys Leu His Asp Ile Pro
           55                  60                  65
```

```
aac acc gtt gaa tcc tca atg cgt gtt tta gca cgt ttg gga ttg gat  475
Asn Thr Val Glu Ser Ser Met Arg Val Leu Ala Arg Leu Gly Leu Asp
     70                  75                  80
```

```
atg gtt aat gtt cac gcc gct ggt ggt gtt gaa atg atg gtt gca gct  523
Met Val Asn Val His Ala Ala Gly Gly Val Glu Met Met Val Ala Ala
 85                  90                  95                 100
```

```
aaa cgc ggt tta gag gct gga acg cca gtt gga cgg caa agg cca aaa  571
Lys Arg Gly Leu Glu Ala Gly Thr Pro Val Gly Arg Gln Arg Pro Lys
                   105                 110                 115
```

```
tta att gcg gtc aca caa tta acc tca act tct gag aaa att atg caa  619
Leu Ile Ala Val Thr Gln Leu Thr Ser Thr Ser Glu Lys Ile Met Gln
               120                 125                 130
```

```
aat gac caa aaa att atg act agt ctt gaa gaa tcg gtt att aat tac  667
Asn Asp Gln Lys Ile Met Thr Ser Leu Glu Glu Ser Val Ile Asn Tyr
           135                 140                 145
```

```
gca caa aaa acc gct caa gca gga ctt gac ggt gtc gtt tgt tcg gca  715
Ala Gln Lys Thr Ala Gln Ala Gly Leu Asp Gly Val Val Cys Ser Ala
     150                 155                 160
```

```
cat gaa gtt gaa aaa att aaa gca gcg aca tcg aaa gaa ttc att tgt  763
His Glu Val Glu Lys Ile Lys Ala Ala Thr Ser Lys Glu Phe Ile Cys
165                 170                 175                 180
```

```
ctc aca cca gga att cgc cca gaa ggt gca agt aaa ggc gac caa aaa    811
Leu Thr Pro Gly Ile Arg Pro Glu Gly Ala Ser Lys Gly Asp Gln Lys
            185                 190                 195

cga gta atg aca cct aaa gaa gca aga aca att ggt tca gat tat att    859
Arg Val Met Thr Pro Lys Glu Ala Arg Thr Ile Gly Ser Asp Tyr Ile
            200                 205                 210

gtt gtc ggc cgt cca att acc caa gca aaa gat cca gta gct agc tat    907
Val Val Gly Arg Pro Ile Thr Gln Ala Lys Asp Pro Val Ala Ser Tyr
            215                 220                 225

cat gcg ata aaa gca gaa tgg aat caa taa                            937
His Ala Ile Lys Ala Glu Trp Asn Gln
    230                 235
```

<210> 24
<211> 237
<212> PRT
<213> Lactococcus lactis

<400> 24

```
Met Gln Glu Asn Arg Pro Val Ile Ala Leu Asp Phe Pro Glu Phe Ser
  1               5                  10                  15

Asp Val Lys Asp Phe Leu Glu Lys Phe Asp Pro Ser Glu Gln Leu Tyr
            20                  25                  30

Ile Lys Leu Gly Met Glu Leu Phe Tyr Thr Ala Gly Pro Gln Val Val
            35                  40                  45

Tyr Tyr Val Lys Ser Leu Gly His Ser Val Phe Leu Asp Leu Lys Leu
    50                  55                  60

His Asp Ile Pro Asn Thr Val Glu Ser Ser Met Arg Val Leu Ala Arg
 65                  70                  75                  80

Leu Gly Leu Asp Met Val Asn Val His Ala Ala Gly Gly Val Glu Met
                85                  90                  95

Met Val Ala Ala Lys Arg Gly Leu Glu Ala Gly Thr Pro Val Gly Arg
            100                 105                 110

Gln Arg Pro Lys Leu Ile Ala Val Thr Gln Leu Thr Ser Thr Ser Glu
            115                 120                 125

Lys Ile Met Gln Asn Asp Gln Lys Ile Met Thr Ser Leu Glu Glu Ser
            130                 135                 140

Val Ile Asn Tyr Ala Gln Lys Thr Ala Gln Ala Gly Leu Asp Gly Val
145                 150                 155                 160

Val Cys Ser Ala His Glu Val Glu Lys Ile Lys Ala Ala Thr Ser Lys
                165                 170                 175

Glu Phe Ile Cys Leu Thr Pro Gly Ile Arg Pro Glu Gly Ala Ser Lys
                180                 185                 190
```

Gly Asp Gln Lys Arg Val Met Thr Pro Lys Glu Ala Arg Thr Ile Gly
        195   200   205

Ser Asp Tyr Ile Val Val Gly Arg Pro Ile Thr Gln Ala Lys Asp Pro
    210   215   220

Val Ala Ser Tyr His Ala Ile Lys Ala Glu Trp Asn Gln
225   230   235

<210> 25
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Vector pFG100

<400> 25
ggtaccgggc ccccccctcga ggtcgacggt atcgataagc ttgatatcga attc   54

<210> 26
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Vector pFG100

<400> 26
ggatccacta gttctagagc ggccgccacc gcggtggagc tccagc   46

<210> 27
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Vector pFG200

<400> 27
gaattcatcg atatctagat ctcgagctcg cgaaagcttg gctgcaggtc gacggatccc 60
cgggaattc   69

<210> 28
<211> 6
<212> PRT
<213> Lactococcus lactis

<400> 28
Thr Gln Leu Thr Ser Thr
  1   5